



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8
999 18TH STREET - SUITE 500
DENVER, CO 80202-2466

MAR 16 1999

Ref: 8P-W-GW

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Deanna Bell
Operations Coordinator
Petroglyph Operating Company, Inc.
4116 W. 3000 S
P. O. Box 607
Roosevelt, UT 84066

RE: UIC PERMIT AUTHORIZATION for
Conversion of Additional Well to
Antelope Creek Waterflood
EPA Area Permit UT2736-00000
Duchesne County, Utah

Dear Ms. Bell:

Your request of September 24, 1998, that the following production well be converted to a Class II enhanced oil recovery well and added to the Antelope Creek Waterflood, as authorized under EPA Area Permit #UT2736-00000 is hereby granted.

<u>NAME</u>	<u>LOCATION</u>	<u>EPA WELL PERMIT NO.</u>
Ute Tribal #16-10	NW SE Section 16 T 5 S - R 3 W Duchesne County, UT	#UT2736-04503

This additional well is within the boundary of the existing area permit for the Antelope Creek Waterflood (UT2736-00000), and this addition is made according to the terms and conditions of that permit. This conversion is authorized under the provisions of 40 CFR Part 144.33 and the terms and conditions of the original permit. The proposed well location, well schematic, conversion procedures with/schematic, plugging and abandonment plan with/schematic, Cement Bond Log (CBL), and Financial Responsibility Demonstration, submitted by your office, have been reviewed and approved as follows:

- (1) The **conversion** plan for this production well has been reviewed, and found satisfactory. No corrective action is required.



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RE: UIC PERMIT
Conversion
Antelope Cr
EPA Area Pe
Duchesne Co

*Scan under
UT20736-00000
66 Modification - minor mod
Approved 3/16/1999
Will need to link with
UT20736-04503 under
81 Add Well to Area Permit
in new database also*

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- (2) **Maximum injection pressure (Pmax)** - the permittee shall limit the maximum surface injection pressure (Pmax) to 2030 psig. Permit provisions have been made that allows the operator to request an increase or decrease in the injection pressure.

The calculations for the fracture gradient was estimated from instantaneous shut-in pressures (ISIP's) observed during fracturing treatments performed on individually fractured zones within the four (4) initial wells establishing the Antelope Creek Field Area Permit. Based on this information, and within the Statement of Basis of the original Area Permit, an initial maximum injection pressure, using 0.88 psi/ft fracture gradient (Fg) has been established for this area permit and wells. This Fg is acceptable to the Environmental Protection Agency (EPA) and a theoretical maximum allowable surface injection pressure (Pmax), for this well, may be calculated as shown below:

$$P_{max} = [Fg - 0.433 (Sg)] d$$

Where: Pmax = Maximum surface injection pressure at wellhead

d = 4542' shallowest perforations after conversion

Sg = Specific gravity of injected water

$$P_{max} = [0.88 - .433 (1.00)] 4542$$

$$P_{max} = 2030 \text{ psig}$$

Until such time as the permittee demonstrates that a fracture gradient other than 0.88 psi/ft applies to the disposal zones of this newly converted well, the maximum allowable wellhead injection pressure (Pmax) for this well will be 2030 psig. The Director will specify in writing, to the permittee, any increase or decrease to the injection pressure based upon the test results and/or other parameters reflecting actual injection operations, pursuant to Part II, Section C. 5. of the original permit.

- (3) **The plugging and abandonment plan and schematic**, submitted by your office, has been reviewed, and approved.
- (4) **Financial Responsibility Demonstration:** the applicant has chosen to demonstrate financial responsibility through a Surety Performance Bond in the amount of \$15,000 per well, as amended and submitted by Bond Rider NO. 14., signed, sealed and dated March 3, 1999.

Prior to commencing injection into this well, permittee must fulfill permit condition Part II, C. 2. and have submitted to the EPA, for review and approval, the following:

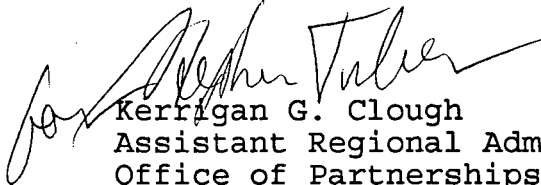
- (1) All conversion is complete and the permittee has submitted a completed **Well Rework Record (EPA Form 7520-12)**.
- (2) The **pore pressure has been determined.**
- (3) The well has successfully completed and passed a **mechanical integrity test, with pressure chart.**

Please be aware that Petroglyph will not have authorization to begin injection into the Ute Tribal #16-10 until the items listed above have been approved by the EPA and Petroglyph has received written authorization to begin injection from the EPA

All other provisions and conditions of the permit remain as originally issued July 12, 1994, and modified April 30, 1998.

If you have any questions, please contact Mr. Chuck Williams at 303-312-6625. Also, please direct the above requirements to Mr. Williams at the above letterhead address, citing **MAIL CODE 8P-W-GW**. Thank you for your continued cooperation.

Sincerely,



Kerrigan G. Clough
Assistant Regional Administrator
Office of Partnerships and
Regulatory Assistance

cc: Mr. Ronald Wopsock, Chairman
Ute Indian Tribe

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Jerry Kenczka
BLM - Vernal District Office

Mr. Gilbert Hunt
State of Utah Natural Resources
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*66 modification - minor mod approved
MAIL changed from 1900 to 2030 pag.*

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- (2) **Maximum injection pressure (Pmax)** - the permittee shall limit the maximum surface injection pressure (Pmax) to 2030 psig. Permit provisions have been made that allows the operator to request an increase or decrease in the injection pressure.

The calculations for the fracture gradient was estimated from instantaneous shut-in pressures (ISIP's) observed during fracturing treatments performed on individually fractured zones within the four (4) initial wells establishing the Antelope Creek Field Area Permit. Based on this information, and within the Statement of Basis of the original Area Permit, an initial maximum injection pressure, using 0.88 psi/ft fracture gradient (Fg) has been established for this area permit and wells. This Fg is acceptable to the Environmental Protection Agency (EPA) and a theoretical maximum allowable surface injection pressure (Pmax), for this well, may be calculated as shown below:

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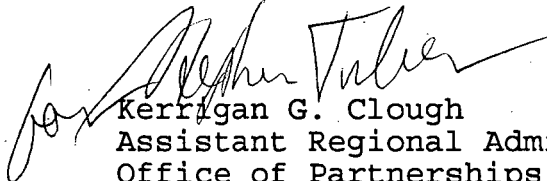
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- (2) The pore pressure has been determined.
- (3) The well has successfully completed and passed a mechanical integrity test, with pressure chart.

Please be aware that Petroglyph will not have authorization to begin injection into the Ute Tribal #16-10 until the items listed above have been approved by the EPA and Petroglyph has received written authorization to begin injection from the EPA

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Assistant Regional Administrator
Office of Partnerships and
Regulatory Assistance

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Ute Indian Tribe

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

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CONCURRENCE COPY

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8P-W-GW
DW Jackson
3-10-99

Tuber
3-11-99
8P-W

8P-W-GW
3/10/99
mailed
3/16/99



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BIA - Uintah & Ouray Agency

Mr. Jerry Kenczka
BLM - Vernal District Office

Mr. Gilbert Hunt
State of Utah Natural Resources
Division of Oil, Gas & Mining

Is your RETURN ADDRESS completed on the reverse side?

SENDER: 3/16/99 CW 34790 MAR 17 1999

- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- ☐ Addressee's Address
- ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Ms. Deanna Bell
Operations Coordinator
Petroglyph Operating Company, Inc.
P.O. Box 607
Roosevelt, UT 84066

4a. Article Number
P 380 306 144

4b. Service Type

<input type="checkbox"/> Registered	<input checked="" type="checkbox"/> Certified
<input type="checkbox"/> Express Mail	<input type="checkbox"/> Insured
<input type="checkbox"/> Return Receipt for Merchandise	<input type="checkbox"/> COD

7. Date of Delivery
3-19-99

5. Received By: (Print Name)

8. Addressee's Address (Only if requested and fee is paid)

6. Signature: (Addressee or Agent)
X Deanna K Bell

MAR 30 1999

PS Form 3811, December 1994

102595-97-B-0179

Domestic Return Receipt

Thank you for using Return Receipt Service.

P 380 306 144

3/16/99 CW 3479C

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail (See reverse)

Sent to	
Ms. Deanna Bell	
Operations Coordinator	
Petroglyph Operating Company, Inc.	
P.O. Box 607	
Roosevelt, UT 84066	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date	

PS Form 3800, April 1995